

DMS 70 Quattro/Dual

BEDIENUNGSANLEITUNG 2
Bitte vor Inbetriebnahme des Gerätes lesen!

USER INSTRUCTIONS..... 22
Please read the manual before using the equipement!

MODE D'EMPLOI..... 42
Veuillez lire cette notice avant d'utiliser le système!

MODO DE EMPLEO..... 62
¡Sirvase leer el manual antes de utilizar el equipo!

INSTRUÇÕES DE USO..... 82
Favor leia este manual antes de usar o equipamento!

AKG
by HARMAN

Table of Contents

1 Safety and Environment 23

Safety 23
Environment 23

2 Description 24

Introduction 24
Scope of supply 24
Optional Accessories 24
DSR 70 Dual receiver 24
DSR 70 Quattro receiver 24
Front panel 25
Rear panel 26
DHT 70 handheld transmitter 27
Controls 27
DHT 70 Perception handheld transmitter 28
DPT 70 bodypack transmitter 29
Controls 29
Microphones, guitar cables 30

3 Installation and Connection 31

Positioning the receiver 31
Rack assembly 31
Connecting the receiver to power 31
Connecting the audio outputs of the DSR 70 Quattro receiver 32
Connecting the receiver to a balanced input 32
Connecting the receiver to a speaker 32
Connecting the DSR 70 Dual receiver to a balanced input 32

4 Setting up 33

Setting up the receiver 33
Inserting and testing batteries in the handheld transmitter DHT 70 33
Inserting and testing batteries in the bodypack DPT 70 transmitter 33
Identifying the channel and/or appliance 34
Assign the transmitter to a free channel or change the channel 34
Registering a new transmitter on the receiver 34
Setting up the handheld transmitter 35
Setting up the bodypack transmitter 35
Connecting a microphone 35
Connecting an instrument 36
Adjusting the audio level on the receiver 36
Adjusting internal error correction 36
Switching off DMS 70 System 36

5 Microphone technique 37

DHT 70 handheld transmitter 37
Working distance and proximity effect 37
Angle of incidence 37
Feedback 37
Backing vocals 37
DPT 70 bodypack transmitter 38
CK97 lavalier microphone 38
C 544 L headset microphone 38
Putting on the microphone 38
Windshield 38
Moisture shield 38

6 Cleaning 39

Internal windshield of handheld transmitter 39

7 Troubleshooting 40

8 Specifications 41

1 Safety and Environment

Safety

- Do not spill any liquids on the equipment.
- The equipment must only be used in dry rooms.
- The equipment must only be opened, serviced, and repaired by authorised personnel. The equipment contains no user-serviceable parts.
- Before connecting the equipment to power, check that the AC mains voltage stated on the supplied AC adapter is identical to the AC mains voltage available where you will use the equipment.
- Only operate the equipment with the supplied AC adapter with a 12-VDC output. Using adapters with a different output voltage or current type may cause serious damage to the unit.
- If any solid object or liquid should get into the equipment, shut down the system immediately. Disconnect the AC adapter from the power outlet at once and have the equipment checked by our customer service department.
- If the equipment is not going to be used for a long time, disconnect the AC adapter from the power outlet. Please note that if you turn the equipment off while leaving the AC adapter plugged in, it is not fully isolated from the power supply.
- Do not place the equipment near heat sources such as radiators, heating ducts, amplifiers, etc. and do not expose it to direct sunlight, excessive dust, moisture, rain, mechanical vibrations, or shock.
- To avoid hum or interference, route all audio lines, particularly those connected to the microphone inputs, away from power lines of any type. If you use cable ducts, be sure to use separate ducts for the audio lines.
- Clean the equipment with a moistened (not wet) cloth only. Be sure to disconnect the AC adapter from the power outlet before cleaning the equipment. Never use caustic or scouring cleaners or cleaning products containing alcohol or solvents since these may damage the enamel and plastic parts.
- Only use the equipment for the applications described in this manual. AKG cannot accept any liability for damages resulting from improper handling or misuse.

Environment



- The power supply unit consumes a small amount of electricity even when the unit is switched off. To save energy, unplug the power supply unit from the socket if you are not going to be using the unit for some time.
- The packaging is recyclable. Dispose of the packaging in an appropriate recycling collection system.
- If you scrap the unit, separate the case, electronics and cables and dispose of all the components in accordance with the appropriate waste disposal regulations.

2 Description

Introduction

Thank you for purchasing an AKG product. This Manual contains important instructions for setting up and operating your equipment. Please take a few minutes to **read the instructions below carefully before operating the equipment**. Please keep the Manual for future reference. Have fun and impress your audience!

Scope of supply

The DMS 70 is available in five sets:

Vocal Dual Set
1 DHT 70 Perception handheld transmitter 2 AA batteries 1 tripod adapter 1 DSR 70 Dual receiver 1 SMPS switched mode power supply 3 adapters (EU/UK/US) 1 guarantee card 1 Quick Start Guide

Instrumental Dual Set
1 DPT 70 bodypack transmitter 2 AA batteries 1 MKG L cable 1 DSR 70 Dual receiver 1 SMPS switched mode power supply 3 adapters (EU/UK/US) 1 guarantee card 1 Quick Start Guide

Vocal Quattro Set
2 DHT 70 D5 handheld transmitters 2 AA batteries 2 tripod adapters 1 DSR 70 Quattro receiver 2 rack brackets including fittings 1 SMPS switched mode power supply 3 adapters (EU/UK/US) 1 guarantee card 1 Quick Start Guide

Instrumental Quattro Set
2 DPT 70 bodypack transmitters 2 AA batteries 2 MKG L cables 1 DSR 70 Quattro receiver 2 rack brackets including fittings 1 SMPS switched mode power supply 3 adapters (EU/UK/US) 1 guarantee card 1 Quick Start Guide

Mixed Quattro Set
1 DHT 70 D5 handheld transmitter 1 DPT 70 bodypack transmitter 2 AA batteries 1 tripod adapter 1 MKG L cable 1 DSR 70 Quattro receiver 2 rack brackets including fittings 1 SMPS switched mode power supply 3 adapters (EU/UK/US) 1 guarantee card 1 Quick Start Guide

Check that the packaging contains all of the items listed for your system. If anything is missing, please contact your AKG dealer.

Optional Accessories

For optional accessories, refer to the current AKG catalog or folder, or visit www.akg.com. Your dealer will be glad to help.

DSR 70 Dual receiver

The DSR 70 Dual is a stationary receiver for up to 2 DMS 70-system transmitters.

The DSR 70 Dual operates within the 2.4 GHz ISM frequency range. Two DSR 70 Duals can be used in parallel (4 channels). Communication between the receiver and the transmitter is digital and bidirectional. Transfer is uncompressed (24 bit) and encrypted (128 bit AES).

DSR 70 Quattro receiver

The DSR 70 Quattro is a stationary receiver for up to 4 DMS 70-system transmitters.

The DSR 70 Quattro operates within the 2.4 GHz ISM frequency range. Two DSR 70 Quattros can be used in parallel (8 channels). Communication between the receiver and the transmitter is digital and bidirectional. Transfer is uncompressed (24 bit) and encrypted (128 bit AES).



NOTE

In order to ensure interference-free operation, ensure that other devices within the 2.4 GHz range (e.g. WLAN, Bluetooth, Access Points) are switched off.
If this is not possible, you can use the **AUTO CORRECTION switch (8)** on the receiver to increase the robustness of the system compared with other 2.4 GHz devices. ("Mid" or "High" position)

Front panel

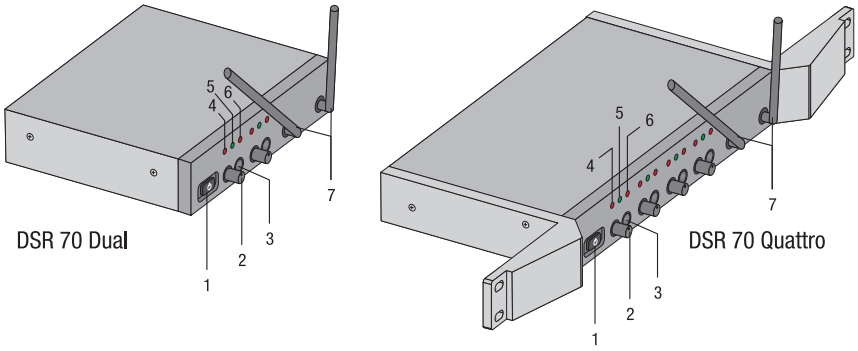


Figure 1: Controls on the front panels of the DSR 70 Dual and Quattro receivers

NOTE

The controls (2 and 3) and the LEDs (4 to 6) are the same for all channels.

1 **On/off button:** This button is lit green when the receiver is switched on and ready for use. It is sufficient to switch off the receiver to switch off the DMS 70 system. Switching off the receiver switches off all transmitters connected to this receiver.

2 **VOLUME potentiometer:** This potentiometer allows continuous adjustment of the audio output level on this channel (10/10a). The Mixing Function means that this potentiometer also influences the sum output (9) on the DSR 70 Quattro.

3 **CONNECT:** This button has two functions:

- **Press briefly:** to check the transmitters assigned to this channel.
- **Press and hold down (approximately 2 seconds):** to assign a transmitter to a free channel or to register a transmitter on this channel.

4 **LOW BATT. LED:** This LED lights up when the batteries of the transmitter registered on this channel are flat. If the LED starts to flash red the battery will be flat within about one hour. Replace with new batteries as soon as possible.

5 **STATUS LED:** This LED lights up green if a registered transmitter is active on this channel and is ready for operation. The LED flashes green during the channel identification and channel assignment processes.

6 **CLIP LED:** This LED lights up red if the audio level on this channel is too high.

7 **Antennas:** Fixed transmitter and receiver antennas. The best transmission and reception performances are achieved when both antennas are pointing upwards in the "normal position" (see diagram on the title page).

Rear panel

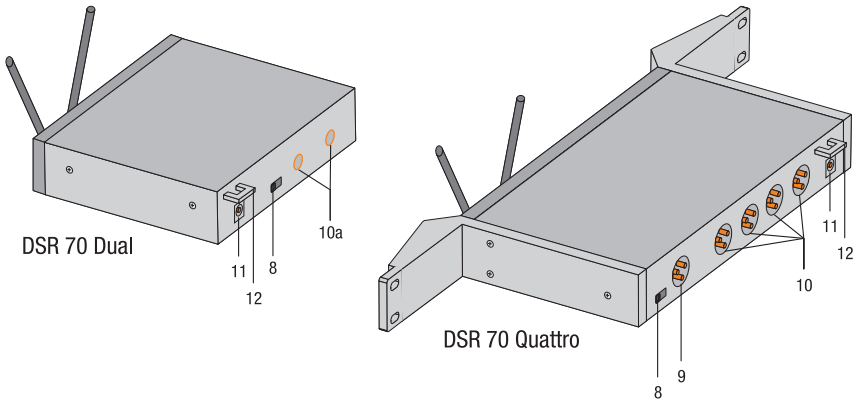


Figure 2: Controls on the rear panels of the DSR 70 Dual and Quattro receivers

8 **AUTO CORRECTION switch**: to adjust internal error correction.

9 **Sum output/BALANCED (x1):** Balanced audio output to 3-pin XLR connector. This output transmits the combined audio signal of all 4 channels and you can connect it directly to an active speaker.

10a **CHANNEL OUT (x2):** Balanced audio output to 6.35 mm jack. This output transmits the audio signal of the respective channel. Can be connected to a microphone input on a mixer, for example.

10 **CHANNEL OUT/BALANCED (x4):** Balanced audio output to 3-pin XLR connector. This output transmits the audio signal of the respective channel. Can be connected to a microphone input on a mixer, for example.

11 **DC IN jack 12 V, 0.5 A**: for connection to supplied external plug adapter.

12 **Strain relief** for the feeder cable of the supplied AC adapter.

DHT 70 handheld transmitter

The DHT 70 handheld transmitter operates within the 2.4 GHz ISM frequency range. The transmitter uses two antennas integrated within the housing.

The capsule in the transmitter is the patented dynamic AKG D5 capsule with its hypercardioid directional characteristic. It provides low handling noise sensitivity, high gain before feedback and brilliant sound quality, as well as a built-in wind and pop filter to reduce wind and breath noise.

Controls

13 **Status LED:** Indicates the transmitter's operating status.

- **LED lit green:** The transmitter is connected to the receiver
- **LED flashing green:** No radio contact between the transmitter and receiver (receiver is OFF, power failure, outside range, etc). The transmitter must be connected to the receiver. After two minutes without radio contact to the receiver, the transmitter switches off automatically.
- **LED lit red:** From the moment the LED changes to red, the battery capacity will provide a maximum of one operating hour. We recommend replacing the batteries with new ones as soon as possible.

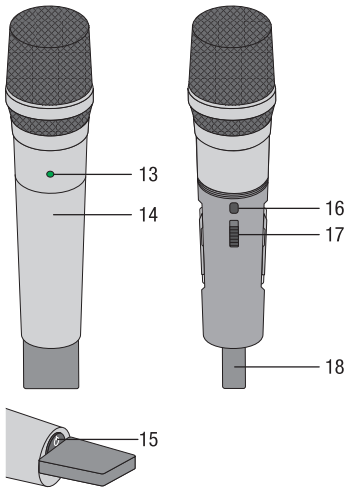


Figure 3: Controls on DHT 70 transmitter

14 **Battery cover:** See ***Inserting and testing batteries in the handheld transmitter*** (see Page 33)

15 **On/off button:**

- **On:** Power to the transmitter is on. The transmitter is ready for use as soon as it is switched on.
- **Off (Digital Mute):** Power to the transmitter is off.

16 **Connect button:** This button has two functions:

- **Press briefly:** Check the assigned channel on the receiver
- **Press and hold down (approximately 2 seconds):** Assign a free channel on the receiver to this transmitter.

15 / 16 **On/off / Connect button:** Use the on/off (15) and Connect button (16) to assign this transmitter to a free channel on the receiver.

17 **GAIN switch:** This slide switch allows you to set the audio input sensitivity of the transmitter to one of two positions: "HI" = high input sensitivity, "LOW" = low input sensitivity.

18 **Antenna section:** The handheld transmitter has a digital diversity antenna system with two antennas integrated within the housing.

NOTE

Do not hold the transmitter by the antenna section (18) as this will reduce the transmission range.

DHT 70 Perception handheld transmitter

The DHT 70 Perception handheld transmitter has a dynamic standard capsule with a cardioid directional characteristic.

The controls are identical to those on the DHT 70.

Description of the ***controls*** (Page 27).

DPT 70 bodypack transmitter

You can use the DPT 70 bodypack transmitter with both dynamic microphones and condenser microphones operating on a supply voltage of approx. 4 V. Naturally you may also connect an electric guitar, electric bass or keytar.

The DPT 70 operates within the 2.4 GHz ISM frequency range.

Controls

13 **Status LED:** Indicates the transmitter's operating status.

- **LED lit green:** The transmitter is connected to the receiver
- **LED flashing green:** No radio contact between the transmitter and receiver (receiver is OFF, power failure, outside range, etc). The transmitter must be connected to the receiver. After two minutes without radio contact to the receiver, the transmitter switches off automatically.
- **LED lit red:** From the moment the LED changes to red, the battery capacity will provide a maximum of one operating hour. We recommend replacing the batteries with new ones as soon as possible.

15 **On/off button:**

- **On:** Power to the transmitter is on. The transmitter is ready for use as soon as it is switched on.
- **Off (Digital Mute):** Power to the transmitter is off.

16 **Connect button:** This button has two functions:

- **Press briefly:** Check the assigned channel on the receiver
- **Press and hold down (approximately 2 seconds):** Assign a free channel on the receiver to this transmitter.

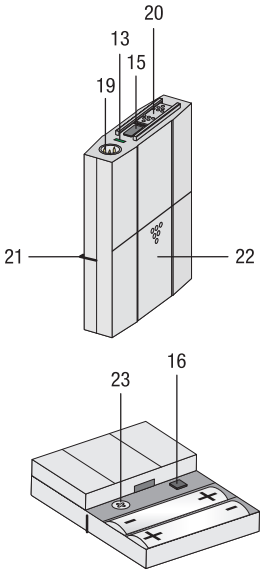


Figure 4: Controls on DPT 70 transmitter

15 / 16 **On/off / Connect button:** Use the on/off (15) and Connect button (16) to assign this transmitter to a free channel on the receiver.

19 **Audio input** is a 3-pin mini-XLR connector. Automatically matches the connector pinout of the recommended AKG microphones or optional MKG L guitar cable.

20 **Cover**: The sliding cover prevents the transmitter from being switched on/off inadvertently

21 **Belt clip**: For fixing the bodypack transmitter to your belt. Attach the bodypack transmitter to a belt or in a pocket with the battery compartment cover facing away from the body.

22 **Battery compartment cover** with integrated screwdriver.

23 **GAIN control**: This rotary control allows you to match the transmitter input gain to the connected microphone or instrument.

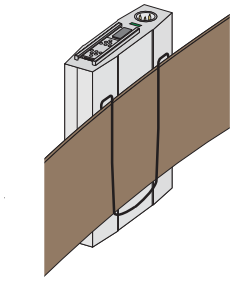


Figure 5: Attachment of bodypack transmitter to belt

Microphones, guitar cables

The following AKG microphones can easily be connected to the audio input of the DPT 70:

- C 520 L, C 555 L, C 544, HC 577, CK 77 WR-L, CK97
- C 516 ML, C 518 ML, C 519 ML, C 411 L
- The MKG L guitar cable from AKG lets you connect an electric guitar, electric bass or keytar to the bodypack transmitter.

The MKG L guitar cable is included in the Instrumental Set and the Mixed Set and is also available separately as an accessory.



NOTE

Keep the microphones used at least 10 cm away from the bodypack transmitter to prevent interference in the microphone capsule from being audible in the audio transfer.

3 Installation and Connection

Positioning the receiver

1) Always position the receiver near to where the action is taking place (e.g. stage).
2) Check that you can see the receiver from where you will be using the transmitter.

Rack assembly

Assembling the DSR 70 Dual in a 19" rack

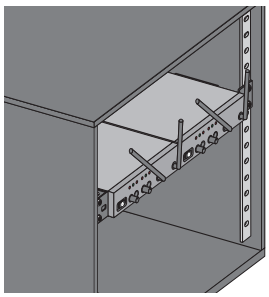


Figure 6: Assembling the DSR 70 Dual in a 19" rack

NOTE

For assembling one or more DSR 70 Dual receivers, the RMU 40 PRO rack assembly set is available in the current AKG catalogue/folder or at www.akg.com.

Assembling the DSR 70 Quattro in a 19" rack

Assemble the DSR 70 Quattro receiver in your 19" rack with the supplied rack brackets, fixing screws and washers - these are screwed into the side of the receiver.

1) Unscrew the fixing screws of each of the two side walls.
2) Secure the rack brackets to the receiver using the fixing screws.
3) Secure the receiver in the rack.
4) Rotate both antennas (7) up to the "normal position" (see diagram on the title page) to achieve optimum transmission and reception performance.

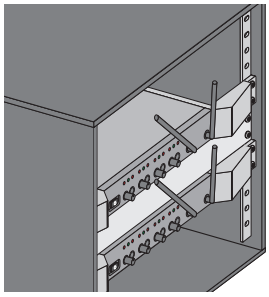


Figure 7: Fitting the DSR70 in a 19" rack

Use of two receivers in one rack

1) Fit both receivers in the rack with one unit of space between them.
2) Rotate both antennas (7) up to the "normal position" (see diagram on the title page).

Connecting the receiver to power

1) Check that the AC mains voltage stated on the included power supply is identical to the AC mains voltage available where you will use your system. Using the power supply with a different AC voltage may wreck the unit.
2) Plug the feeder cable of the included power supply into the 12 V, 0.5 A, **DC IN socket (11)** on the receiver.
3) Connect the AC adapter to a power outlet. Ensure that you are using the correct adapter for the country you are in.

Connecting the audio outputs of the DSR 70 Quattro receiver

Connecting the receiver to a balanced input

Use an XLR cable to connect the **BALANCED output (10)** of the required channel on the back of the receiver to the balanced microphone input (XLR socket) on the mixer or amplifier.

Connecting the receiver to a speaker

Use an XLR cable to connect the **sum output (9)** of all four channels on the back of the receiver to an active speaker.

Connecting the DSR 70 Dual receiver to a balanced input

Connect the **6.35 mm jack (10a)** of the required channel on the back of the receiver to the balanced microphone input on the mixer or amplifier.

4 Setting up

Setting up the receiver

Press the **On/off switch (1)** to switch the receiver on. This green button is illuminated when the receiver is ready for use.

Inserting and testing batteries in the handheld transmitter DHT 70

1) Unscrew the**battery cover (14)** from the handheld transmitter.
2) Lift up the two battery compartment covers.
3) Insert the supplied batteries into the battery compartment conforming to the polarity marks.
   The transmitter will not function if you insert the batteries the wrong way round.
4) Close the two battery compartment covers.
5) Switch on the transmitter with the **On/Off button (15)**.
   - If the **status LED (13) flashes green**, the batteries are in good condition but there is no radio contact with the receiver. The transmitter must be connected to the receiver.
   - If the status LED is **lit green**, the batteries are in good condition and there is radio contact between the transmitter and receiver. Speak or sing into the microphone.
   - If the status LED goes **red** the batteries are likely to be flat in approx. 1 hour. Replace with new batteries as soon as possible.
   - If the status LED does not light up the batteries are flat or possibly incorrectly fitted. Insert new batteries or insert the existing batteries correctly. Check for the correct polarity.
6) Screw on the battery cover tightly.

Inserting and testing batteries in the bodypack DPT 70 transmitter

1) Depress the snap hook on the **battery compartment cover (22)**.
2) Pull the battery compartment cover down and off the transmitter.
3) Insert the supplied batteries into the battery compartment conforming to the polarity marks.
   The transmitter will not function if you insert the batteries the wrong way round.
4) Slide the **slide cover (20)** to the rear position and switch on the transmitter using the **on/off switch (15)**.
   - If the **status LED (13) flashes green**, the batteries are in good condition but there is no radio contact with the receiver. The transmitter must be connected to the receiver.
   - If the status LED is **lit green**, the batteries are in good condition and there is radio contact between the transmitter and receiver.
   - If the status LED goes **red** the batteries are likely to be flat in approx. 1 hour. Replace with new batteries as soon as possible.
   - If the status LED does not light up the batteries are flat or possibly incorrectly fitted. Insert new batteries or insert the existing batteries correctly. Check for the correct polarity.
5) Push the slide cover over the on/off switch to prevent the transmitter from being switched on/off inadvertently.
6) To close the battery compartment, slide the battery compartment cover onto the battery compartment from below until the snap hook engages.

Identifying the channel and/or appliance

When delivered, the transmitters are preconfigured to channels 1 and 2 of the receiver.

Use the identification function to check

- the channel on the receiver assigned for a transmitter **and**
- the connected transmitter for a channel on the receiver.

Press **Connect (16)** briefly on the transmitter or the receiver.

- The **status LEDs (13)** on the same channel of the transmitter and receiver flash green.


NOTE

This identification function can also be used during operation without causing any disturbance or interruption.

Assign the transmitter to a free channel or change the channel

The following instructions apply for the assignment of a free channel and for changing a channel.

Actions 3 and 4 can be started from the transmitter and receiver. In this example, they are started from the receiver.

1) Pull the **battery compartment cover (14 / 22)** down and off the transmitter.
2) Switch on the transmitter and receiver.
3) Press **Connect (3)** on a free channel of the receiver and hold down until the **status LED (5)** starts to flash after approximately 2 seconds.
   - You need to confirm with the transmitter within the next 30 seconds.
4) Hold down **Connect (16)** on the transmitter until the **status LED (13)** lights up green.
   - The status LEDs on the transmitter (13) and the receiver (5) light up green once assignment has been successful.


NOTE

The actuated settings are saved. This means that you can simply continue using the DNS 70 system with the last-used settings (channel assignments) the next time you switch on.


NOTE

Dual channel use is not possible with the DMS70 system.
I.e. several transmitters can't be assigned to a single channel on the receiver. The LED on the connected transmitter lits green, the LED on the transmitter, which is not connected, flashes green. Please assign this transmitter to a free channel on the receiver.
Take care that you do not use a channel twice.

Registering a new transmitter on the receiver

Start the registration process with the **transmitter**: Transmitter -> Receiver

1) Pull the **battery compartment cover (14 / 22)** down and off the transmitter.
2) Switch on the receiver.
3) Press and hold **Connect (16)** on the transmitter while pressing the **on/off button(15)** until the **status LED (13)** starts to flash.
   - Within the next 30 seconds, the status LED (13) flashes rapidly and you need to confirm with the receiver.
4) Hold down **Connect (3)** on a free channel of the receiver until the **status LED (5)** lights up green.
   - The status LEDs on the transmitter (13) and the receiver (5) light up green after successful registration.

You can also start this process from the **receiver**: Receiver -> Transmitter

1) Pull the **battery compartment cover (14 / 22)** down and off the transmitter.
2) Switch on the receiver.
3) Press **Connect (3)** on a free channel of the receiver and hold down until the **status LED (5)** starts to flash after approximately 2 seconds.
   - You need to confirm with the transmitter within the next 30 seconds.
4) Press and hold **Connect (16)** on the transmitter while pressing the **on/off button(15)** until the **status LED (13)** lights up green.
   - The status LEDs on the transmitter (13) and the receiver (5) light up green after successful registration.

Setting up the handheld transmitter

1) Switch on the handheld transmitter using the **on/off button (15)**.
2) Switch on your PA system or amplifier.
3) Assign the handheld transmitter and receiver to a free channel.
4) Speak or sing into the microphone and watch the **CLIP LED (6)** on the receiver:
   - Set the **GAIN switch (17)** to "HIGH" under normal conditions.
   - If the CLIP LED lights up frequently or all the time when you sing loudly, the input sensitivity of the transmitter is too high. Set the GAIN to "LOW".
5) Set the volume of the PA system or amplifier referring to the appropriate instruction manual or by ear.


NOTE

After two minutes without radio contact with the receiver (receiver is OFF, power failure, outside range, etc) the connected transmitters switch off automatically.

Setting up the bodypack transmitter

The bodypack transmitter DPT 70 has been designed for use with the CK 55 L, C 411 L, C 520 L, C 555 L, C 516 ML, C 518 ML, C 519 ML and CK 77 WR-L microphones from AKG.

If you wish to connect microphones from other manufacturers to the DPT 70, please note that you may have to replace the existing connector of your microphone with a 3-pin mini XLR connector.

Audio input pinout:
Pin 1: shield
Pin 2: audio inphase (+)
Pin 3: supply voltage

A 4V positive supply voltage for condenser microphones is available on pin 3.


ATTENTION

There is no guarantee that the bodypack transmitter DPT 70 will work perfectly with products from other manufacturers. Any damage that may result from such use is not covered by the AKG warranty scheme.

Connecting a microphone

1) Remove the **battery compartment cover (22)**.
2) Plug the mini XLR connector on the cable of your microphone into the **audio input socket (19)** on the bodypack transmitter.
3) Slide the **slide cover (20)** to the rear position and switch on the bodypack transmitter using the **on/off switch (15)**.
4) Assign a free channel to the bodypack transmitter and receiver.
5) Speak or sing into the microphone.
6) Use the screwdriver integrated in the battery compartment cover to set the **GAIN control (23)** to a position where the **CLIP LED (6)** on the receiver will flash occasionally.
7) Replace the battery compartment cover on the transmitter.

Connecting an instrument

1) Remove the **battery compartment cover (22)**.
2) Plug the jack plug on the MKG L guitar cable into the output jack of your instrument and the mini XLR connector on the guitar cable into the **audio input socket (19)** of the bodypack transmitter.
3) Slide the **slide cover (20)** to the rear position and switch on the bodypack transmitter using the **on/off switch (15)**.
4) Assign a free channel to the bodypack transmitter and receiver.
5) Play your instrument.
6) Use the screwdriver integrated in the battery compartment cover to set the **GAIN control (23)** to a position where the **CLIP LED (6)** on the receiver will flash occasionally.
7) Replace the battery compartment cover on the transmitter.

Adjusting the audio level on the receiver

Use the **VOLUME potentiometer (2)** to adjust the audio output level on this channel (10/10a).

Connect the DSR 70 Quattro receiver to an active speaker and use the VOLUME potentiometers of the active channels to adjust the **sum output (9)** based on the Mixing Function.

Adjusting internal error correction

In an undisturbed environment, set the **AUTO CORRECTION switch (8)** on the back of the receiver to "Low" which guarantees an optimum transfer time.

If another interfering device in the 2.4 GHz ISM frequency range causes unwanted signals near the receiver, this can cause interference. Increase the internal error correction by adjusting the AUTO CORRECTION switch to the "Mid" or "High" setting.

Switching off DMS 70 System

It is sufficient to switch off the receiver to switch off the DMS 70 system. The receiver switches off all transmitters connected to it.

5 Microphone technique

DHT 70 handheld transmitter

A handheld vocal microphone provides many ways of shaping the sound of your voice as it is heard over the sound system.

The following sections contain useful hints on how to use your DHT 70 handheld transmitter for best results.

Working distance and proximity effect

Basically, your voice will sound bigger and mellower, the closer you hold the microphone to your lips. Moving away from the microphone will produce a more reverberant, more distant sound as the microphone will pick more of the room's reverberation.

You can use this effect to make your voice sound aggressive, neutral, sensual, etc. simply by altering your distance from the microphone.

The proximity effect is a powerful increase in low frequency response that occurs when a sound source is close to a microphone (less than 2 inches / 5 cm). It gives more "body" to your voice and an intimate, bass-heavy sound.

Angle of incidence

Sing to one side of the microphone or above and across the top of the microphone. This provides a well-balanced, natural sound.

If you sing directly into the microphone, it will not only pick up excessive breath noise but also overemphasise "s", "sh", "tch", "p", and "t" sounds.

Feedback

Feedback occurs when part of the sound projected by the loudspeakers is picked up by a microphone, amplified and fed back to the speakers. Above a certain volume (the feedback threshold) this process becomes a vicious circle, making the sound system howl and screech. The only solution is to turn down the volume.

To reduce the danger of this happening, the microphone of the DHT 70 has a cardioid pickup pattern.

This means that the microphone is most sensitive to sounds arriving from in front of it (your voice), while picking up hardly any sound arriving from the sides or rear (from monitor speakers for instance).

To maximize gain before feedback, place the PA speakers in front of the microphones (along the front edge of the stage).

If you use monitor speakers, be sure never to point any microphone directly at the monitors or at the PA speakers.

Feedback may also be triggered by resonances (due to the room acoustics), particularly in the low frequency range, and thus indirectly by the proximity effect. In this case, it is often enough to move away from the microphone a little to stop the feedback.

Backing vocals

1) Never let more than two people share a microphone.
2) Backing vocalists should not sing at more than 35° to the microphone axis.
   The microphone is very insensitive to sounds arriving from the side. If the two vocalists were to try and sing into the microphone at an angle of more than 35° to the microphone axis, you would have to turn up the level of the microphone channel high enough to cause a feedback problem.

DPT 70 bodypack transmitter

CK97 lavalier microphone

Fix the microphone to the supplied lavalier clip or to the optional H 41/1 tiepin.

1) Clip the microphone onto the speaker's clothing, as close as possible to his or her mouth.


NOTE

The closer the microphone is to the speaker's mouth, the less danger there is of feedback.

2) Make sure to aim the microphone towards the user's mouth.

C 544 L headset microphone

Putting on the microphone

1) Put the microphone on.
2) Bend the gooseneck so that the microphone sits to one side in front of the corner of your mouth.


NOTE

- If you hear excessive pop noise ("p" and "t" sounds are overemphasised unnaturally), move the microphone capsule further away from your mouth (back or down).
- If the microphone sounds "thin" or flat, move the microphone capsule closer to your mouth.
- Find the optimum position during the soundcheck.

Windshield

If (for instance,on an open-air stage) excessive wind or pop noise becomes audible, attach the supplied foam windshield to the microphone.

1) Slide the windshield onto the microphone capsule.
2) Pull the windshield over the outer end of the microphone capsule.

Moisture shield

A special moisture shield on the microphone capsule makes it harder for moisture and makeup to penetrate into the microphone.

This prevents the microphone apertures from being clogged by perspiration or makeup, which would make the sound dull and reduce the sensitivity of the microphone. Therefore, you should never remove the moisture shield from the microphone.

The C 544 L headset microphone includes a replacement moisture shield in case the first one gets damaged or lost.

6 Cleaning

Unplug the power supply unit from the socket.

Clean the surface of the unit with a moistened (not wet) cloth.


ATTENTION

Never use caustic or scouring cleaners or cleaning agents containing alcohol or solvents, since these may damage the enamel and plastic parts.

Internal windshield of handheld transmitter

1) Unscrew and remove the wire-mesh cap of the handheld transmitter.
2) Take the windshield (foam insert) out of the wire-mesh cap.
3) Wash the windshield in mild soap suds.
4) As soon as the windshield has dried, replace it in the wire-mesh cap and screw the wire-mesh cap onto the handheld transmitter.

7 Troubleshooting

Problem	Possible cause	Remedy
No radio contact, the status LED (13) on the transmitter is flashing green. The connected transmitters switch off automatically after two minutes without radio contact with the receiver.	The receiver is switched off, there is a power failure, the transmitter is out of range, or a new transmitter is not registered.	Set up the receiver. Make sure the transmitter is in range of the transmitter.
No sound	No sound because dual channel usage is not permitted. Status LED (13) of the transmitter flashes green, because another transmitter is active on the same channel on the receiver. Channel identification is not possible if transmitter is not connected.	Switch off the transmitter which is not outputting an audio signal and assign this transmitter to a free channel on the receiver.
	AC adapter is not connected to receiver and/or power outlet.	Connect AC adapter to receiver and/or power outlet.
	Receiver is OFF.	Switch on receiver using on/off button (1).
	Receiver is not connected to mixer or amplifier.	Connect receiver output to mixer or amplifier input.
	VOLUME potentiometer (2) on receiver is at zero.	Turn up VOLUME potentiometer
	Microphone or instrument is not connected to bodypack transmitter.	Connect microphone or instrument to audio input (19) on bodypack.
	Transmitter on/off switch (15) is set to "OFF" or "MUTE".	Set transmitter on/off switch to "ON".
	Transmitter batteries are not inserted properly.	Insert batteries conforming to "+" and "-" marks.
	Transmitter batteries are flat.	Replace transmitter batteries.
	Transmitter is too far away from the receiver.	Move closer to the receiver.
	Obstructions between transmitter and receiver.	Remove obstructions.
	No line of sight between transmitter and receiver.	Avoid spots where you cannot see receiver.
	Receiver is too close to metal objects.	Remove interfering objects or move receiver away from them.
Noise, crackling, unwanted signals	Antenna is in an unsuitable position.	Move receiver to a different location. The best transmission and reception performance is achieved when the antennas (7) are pointing upwards in the "normal position" (see diagram on the title page).
	Interference from other wireless systems, TV, radio, mobile phone, walkie-talkies, or defective electrical appliances or installations.	Increase the internal error correction by adjusting the AUTO CORRECTION switch to the "Mid" or "High" setting. Switch off interfering appliances within the 2.4 GHz ISM frequency range; switch off defective appliances; have electrical installations checked.
Distortion	GAIN control (17 / 23) is set too high or too low.	Turn GAIN control up or down until distortion goes away.
	Interference from other wireless systems, TV, radio, mobile phone, walkie-talkies, or defective electrical appliances or installations.	Increase the internal error correction by adjusting the AUTO CORRECTION switch to the "Mid" or "High" setting. Switch off interfering appliances within the 2.4 GHz ISM frequency range; switch off defective appliances; have electrical installations checked.
	Antenna position.	Move receiver to a different location. If dead spots persist, mark and avoid them.

8 Specifications

	DSR 70 Dual	DHT 70 Perception
Carrier frequency range	DFS (dynamic frequency selection) in 2.4 GHz ISM band	DFS in 2.4 GHz ISM band
Switching bandwidth	DFS	DFS
RF output	max. 100 mW	max. 100 mW
Diversity System	Digital diversity	Digital diversity
Modulation / bandwidth	OFDM (Orthogonal Frequency-Division Multiplexing) 16 MHz	OFDM 16 MHz
GAIN control	0 – 1.4 Vrms	max. SPL: ≤ 142 dB (GAIN = LOW) max. SPL: ≤ 129 dB (GAIN = HIGH)
Frequency response	20 – 20,000 Hz (± 1 dB)	70 – 16,000 Hz (± 3 dB)
T.H.D.	≤ 0.05%	≤ 0.05%
Overall dynamic range	120 dB(A)	113 dB(A)
Encryption	128 Bit AES	128 Bit AES
Audio outputs	2 x 6.35mm jack	-
Range	Indoor 30 m NLOS Outdoor 50 m LOS	Indoor 30 m NLOS Outdoor 50 m LOS
Power requirement	12 Vdc, 0.5 A	~ 6 hours: 2x LR6 AA alkaline batteries ~ 7 hours: 2x AA NiMH batteries
Dimensions	Standalone: 202 mm × 45 mm × 125 mm	233 mm x 51 mm
Net weight	480 g	260 g
Microphone capsule	-	Hypercardioid

	DSR 70 Quattro	DPT 70	DHT 70 D5
Carrier frequency range	DFS (dynamic frequency selection) in 2.4 GHz ISM band	DFS in 2.4 GHz ISM band	DFS in 2.4 GHz ISM band
Switching bandwidth	DFS	DFS	DFS
RF output	max. 100 mW	max. 100 mW	max. 100 mW
Diversity System	Digital diversity	Digital diversity	Digital diversity
Modulation / bandwidth	OFDM (Orthogonal Frequency-Division Multiplexing) 16 MHz	OFDM 16 MHz	OFDM 16 MHz
GAIN control	0 – 1.4 Vrms	0 (2.2 Vrms) – 30 dB (70 mVrms) max. input-level: > 3 Vrms (GAIN = MIN)	max. SPL: ≤ 142 dB (GAIN = LOW) max. SPL: ≤ 129 dB (GAIN = HIGH)
Frequency response	20 – 20,000 Hz (± 1 dB)	30 – 20,000 Hz (± 1 dB)	70 – 20,000 Hz (± 3 dB)
T.H.D.	≤ 0.05%	≤ 0.05%	≤ 0.05%
Overall dynamic range	120 dB(A)	125 dB(A)	120 dB(A)
Encryption	128 Bit AES	128 Bit AES	128 Bit AES
Audio outputs	5 x XLR balanced, (4x channel, 1x sum)	-	-
Range	Indoor 30 m NLOS Outdoor 50 m LOS	Indoor 30 m NLOS Outdoor 50 m LOS	Indoor 30 m NLOS Outdoor 50 m LOS
Power requirement	12 Vdc, 0.5 A	~ 6 hours: 2x LR6 AA alkaline batteries ~ 7 hours: 2x AA NiMH batteries	~ 6 hours: 2x LR6 AA alkaline batteries ~ 7 hours: 2x AA NiMH batteries
Dimensions	Standalone: 303 mm × 42 mm × 144 mm Rack: 482 mm × 42 mm × 144 mm	92 mm × 64 mm x 28 mm	233 mm x 51 mm
Net weight	1180 g	70 g	260 g
Microphone capsule	-	-	Dynamic hypercardioid - D 5

This product conforms to the standards listed in the Declaration of Conformity. To order a free copy of the Declaration of Conformity, visit http://www.akg.com or contact sales@akg.com.

Mikrofone · Kopfhörer · Drahtlosmikrofone · Drahtloskopfhörer · Kopfsprechgarnituren · Akustische Komponenten
Microphones · Headphones · Wireless Microphones · Wireless Headphones · Headsets · Electroacoustical Components
Microphones · Casques HiFi · Microphones sans fil · Casques sans fil · Micros-casques · Composants acoustiques
Microfoni · Cuffie HiFi · Microfoni senza filo · Cuffie senza filo · Cuffie-microfono · Componenti acustici
Micrófonos · Auriculares · Micrófonos inalámbricos · Auriculares inalámbricos · Auriculares con micrófono · Componentes acústicos
Microfones · Fones de ouvido · Microfones s/fios · Fones de ouvido s/fios · Microfones de cabeça · Componentes acústicos

AKG Acoustics GmbH

Lemböckgasse 21–25, A-1230 Vienna/AUSTRIA, phone: (+43-1) 86654-0*
e-mail: sales@akg.com

For other products and distributors worldwide visit **www.akg.com**

ROHS OK

Technische Änderungen vorbehalten. Specifications subject to change without notice. Ces caractéristiques sont susceptibles de modifications. Ci riserviamo il diritto di effettuare modifiche tecniche. Nos reservamos el derecho de introducir modificaciones técnicas. Especificações sujeitas a mudanças sem aviso prévio.

02/12/9100 U 13970_B

by HARMAN